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NORTH
CENTRAL
FOREST
& RANGE
EXPERIMENT
STATION
RESOURCE
BULLETIN

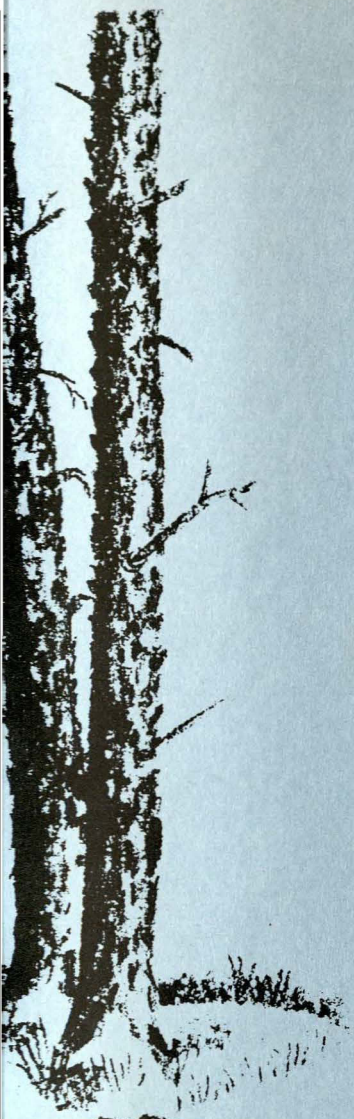
VOL 3
1978-1980
NC 35-54

SD
11
.A472

U.S.D.A.

943 Color:

USDA FOREST SERVICE
RESOURCE BULLETIN NC-35



PULPWOOD PRODUCTION
in the
NORTH CENTRAL REGION
BY COUNTY
1976

JAMES E. BLYTH
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NORTH CENTRAL FOREST EXPERIMENT STATION
FOREST SERVICE
U. S. DEPARTMENT OF AGRICULTURE

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Manuscript approved for publication November 4, 1977

1978

We gratefully acknowledge the cooperation of pulpmills using North Central States timber in 1976. Thanks are also due the Michigan Department of Natural Resources for collecting data from Michigan pulpmills.

HIGHLIGHTS

Lake States

Lake States pulpwood production climbed 13 percent from 1975 to 4.69 million cords in 1976. This higher pulpwood demand resulted in a 14-percent rise in United States paper and paperboard production in 1976 and the reopening of a large Lake States pulpmill after a long closure during an employee strike.

Lake States loggers cut 558,000 more cords of pulpwood in 1976 than in 1975. Major increases were in aspen, elm, and birch. Elm harvesting more than tripled the 1975 level.

Birch production reached new highs in Wisconsin and Minnesota. Pine harvesting advanced to a record in Michigan but fell in Minnesota to the lowest level since 1949.

Softwood residue imports from Canada rose for the fourth consecutive year. Imports from other States increased to 236,000 cords.

New pulping capacity in the Lake States will require at least 80,000 additional cords of pulpwood annually.

Central States

Pulpwood production increased 14 percent to 465,000 cords. Use of Central States hardwood residue for pulp exceeded 300,000 cords for the first time. Soft hardwood pulpwood output was the lowest ever recorded.

Exports to five nearby States rose for the third consecutive year and constituted almost half the total production.

Pulpwood receipts climbed 15 percent; about one-eighth was imported from 11 widely scattered States.

PULPWOOD PRODUCTION IN THE NORTH CENTRAL REGION BY COUNTY, 1976

James E. Blyth, *Principal Market Analyst*

and

Jerold T. Hahn, *Mensurationist*

This is the 18th annual report on the pulpwood harvest in Lake States counties and the 17th annual report on the Central States harvest. Pulpwood constitutes more than half the timber products harvested annually in the Lake States (Michigan, Minnesota, and Wisconsin) and is an important product in the Central States (Illinois, Indiana, Iowa and Missouri).

Current detailed pulpwood production[1] information is necessary for intelligent planning and decisionmaking in wood procurement, forest resource management, and forest industry development. Also, researchers need current pulpwood information for planning projects.

Pulpmills using North Central States timber in 1976 reported their pulpwood receipts by species groups and counties of origin. This report presents the results of the survey, analyzes the data where appropriate, compares results with 1975 or earlier years, and discusses trends in pulpwood production and use.

The Lake States and Central States are discussed separately because the timber types in each area are different and less information can be released about the Central States (more detailed data on pulpwood production and receipts in the Central States would reveal the operations of individual mills).

Pulpwood production in Minnesota is completely and accurately shown. However, to prevent disclosure of confidential information about softwood pulpwood use by individual companies, the total quantity of softwood pulpwood imports in Minnesota from Canada and exports from Minnesota softwood shipped to Canada is shown as remaining and used in Minnesota, and receipts of Canadian softwood in Minnesota are understated.

[1] *Pulpwood production is defined as the annual pulpwood volume harvested from timber land in a specified area that was received at all mills, plus the annual wood residue volume from sawmills, veneer mills, etc. in a specified area that was received at pulpmills. Pulpwood receipts are defined as the volume of wood received by mills in a specified area, regardless of the geographic source.*

LAKE STATES

Production

Lake States pulpwood production rose to 4.69 million cords in 1976 from 4.14 milion cords in 1975 (table 1). Higher pulpwood demand resulted from a 14-percent rise in paper and paperboard production in the United States in 1976 and the reopening of a large pulpmill in the Lake States after a lengthy employee strike in 1975. Pulpwood inventories declined 6 percent in the Lake States during 1976.

Less than 5 percent of the Lake States pulpwood was shipped to other areas. Nine out of ten cords produced were roundwood (including chips from roundwood); the remainder was residue

Table 1. — *Production and imports of pulpwood, Lake States, 1976*
(In standards cords, unpeeled)

SPECIES AND DESTINATION	PRODUCTION BY STATES 1/				IMPORTS			TOTAL RECEIPTS
	MICHIGAN	MINNESOTA	WISCONSIN	REGIONAL TOTAL	OTHER U.S. 2/	CANADA	TOTAL IMPORTS	
CEDAR								
MICHIGAN	5391	0	17	5408	0	0	0	5408
TOTAL	5391	0	17	5408	0	0	0	5408
BALSAM FIR								
MICHIGAN	20811	0	275	21086	0	0	0	21086
MINNESOTA	0	67700	0	67700	0	0	0	67700
WISCONSIN	46248	2283	88524	137055	0	0	0	137055
EXPORTED 3/	8067	3793	0	11860	0	0	0	0
TOTAL	75126	73776	88799	237701	0	0	0	225841
HEMLOCK								
MICHIGAN	54927	0	912	55839	0	0	0	55839
WISCONSIN	24128	0	41905	66033	0	0	0	66033
TOTAL	79055	0	42817	121872	0	0	0	121872
JACK PINE								
MICHIGAN	138756	0	3901	142657	0	0	0	142657
MINNESOTA	0	122044	0	122044	0	2075	2075	124119
WISCONSIN	64466	32040	165714	262220	4/47589	0	47589	309809
EXPORTED 3/	0	4269	0	4269	0	0	0	0
TOTAL	203222	158353	169615	531190	47589	2075	49664	576585
RED PINE								
MICHIGAN	57644	0	1172	58816	0	0	0	58816
MINNESOTA	0	7232	0	7232	0	0	0	7232
WISCONSIN	6431	3233	103092	112756	0	0	0	112756
TOTAL	64075	10465	104264	178804	0	0	0	178804
WHITE PINE								
MICHIGAN	11390	0	43	11433	0	0	0	11433
MINNESOTA	0	3014	0	3014	0	0	0	3014
WISCONSIN	2436	6	12314	14756	0	0	0	14756
TOTAL	13826	3020	12357	29203	0	0	0	29203
SPRUCE								
MICHIGAN	10465	0	46	10511	0	0	0	10511
MINNESOTA	0	142302	0	142302	0	0	0	142302
WISCONSIN	16872	31093	18634	66599	0	54331	54331	120930
EXPORTED 3/	4521	2252	0	6773	0	0	0	0
TOTAL	31858	175647	18680	226185	0	54331	54331	273743
TAMARACK								
MICHIGAN	166	0	0	166	0	0	0	166
MINNESOTA	0	7357	0	7357	0	0	0	7357
WISCONSIN	987	29638	3273	33898	0	0	0	33898
TOTAL	1153	36995	3273	41421	0	0	0	41421
ASH								
MICHIGAN	6501	0	38	6539	0	0	0	6539
WISCONSIN	4501	0	26201	30702	0	0	0	30702
EXPORTED 3/	0	0	226	226	0	0	0	0
TOTAL	11002	0	26465	37467	0	0	0	37241
ASPEN								
MICHIGAN	325544	0	1463	327007	0	0	0	327007
MINNESOTA	0	587758	10932	598690	0	546	546	599236
WISCONSIN	165165	79324	681007	925496	0	0	0	925496
EXPORTED 3/	0	6018	28	6046	0	0	0	0
TOTAL	490709	673100	693430	1857239	0	546	546	1851739
BALSAM POPLAR								
MICHIGAN	27667	0	543	28210	0	0	0	28210
MINNESOTA	0	22816	0	22816	0	0	0	22816
TOTAL	27667	22816	543	51026	0	0	0	51026
BASSWOOD								
MICHIGAN	6085	0	59	6144	0	0	0	6144
MINNESOTA	0	1101	0	1101	0	0	0	1101
WISCONSIN	119	0	10365	10484	0	0	0	10484
EXPORTED 3/	0	0	16	16	0	0	0	0
TOTAL	6204	1101	10440	17745	0	0	0	17729

TABLE 1 CONTINUED ON NEXT PAGE

TABLE 1 CONTINUED

SPECIES AND DESTINATION	PRODUCTION BY STATES 1/				IMPORTS			TOTAL RECEIPTS
	MICHIGAN	MINNESOTA	WISCONSIN	REGIONAL TOTAL	OTHER U.S. 2/	CANADA	TOTAL IMPORTS	
BEECH								
MICHIGAN	12115	0	269	12384	0	0	0	12384
WISCONSIN	315	0	7	322	0	0	0	322
TOTAL	12430	0	276	12706	0	0	0	12706
WHITE BIRCH								
MICHIGAN	45475	0	801	46276	0	0	0	46276
MINNESOTA	0	42696	0	42696	0	0	0	42696
WISCONSIN	5155	3390	98575	107120	0	0	0	107120
EXPORTED 3/	0	0	15	15	0	0	0	0
TOTAL	50630	46086	99391	196107	0	0	0	196092
YELLOW BIRCH								
MICHIGAN	6678	0	202	6880	0	0	0	6880
WISCONSIN	11276	0	14342	25618	0	0	0	25618
TOTAL	17954	0	14544	32498	0	0	0	32498
COTTONWOOD								
MICHIGAN	356	0	0	356	0	0	0	356
EXPORTED 3/	0	0	556	556	0	0	0	0
TOTAL	356	0	556	912	0	0	0	356
ELM								
MICHIGAN	15183	0	314	15497	0	0	0	15497
MINNESOTA	0	1036	0	1036	0	0	0	1036
WISCONSIN	18591	0	197496	216087	0	0	0	216087
EXPORTED 3/	0	0	209	209	0	0	0	0
TOTAL	33774	1036	198019	232829	0	0	0	232620
HICKORY								
MICHIGAN	104	0	0	104	0	0	0	104
WISCONSIN	0	0	988	988	0	0	0	988
EXPORTED 3/	0	0	340	340	0	0	0	0
TOTAL	104	0	1328	1432	0	0	0	1092
HARD MAPLE								
MICHIGAN	28369	0	657	29026	0	0	0	29026
MINNESOTA	0	1036	0	1036	0	0	0	1036
WISCONSIN	27568	410	65351	93329	0	0	0	93329
EXPORTED 3/	0	0	660	660	0	0	0	0
TOTAL	55937	1446	66668	124051	0	0	0	123391
SOFT MAPLE								
MICHIGAN	74571	0	988	75559	0	0	0	75559
MINNESOTA	0	1036	0	1036	0	0	0	1036
WISCONSIN	11578	283	49968	61829	0	0	0	61829
EXPORTED 3/	0	0	558	558	0	0	0	0
TOTAL	86149	1319	51514	138982	0	0	0	138424
RED OAK								
MICHIGAN	73404	0	49	73453	0	0	0	73453
MINNESOTA	0	4143	0	4143	0	0	0	4143
WISCONSIN	123	0	52613	52736	0	0	0	52736
EXPORTED 3/	0	0	478	478	0	0	0	0
TOTAL	73527	4143	53140	130810	0	0	0	130332
WHITE OAK								
MICHIGAN	7754	0	3	7757	0	0	0	7757
WISCONSIN	0	0	9516	9516	0	0	0	9516
EXPORTED 3/	0	0	181	181	0	0	0	0
TOTAL	7754	0	9700	17454	0	0	0	17273
OTHER HARDWOODS								
MICHIGAN	2375	0	7	2382	0	0	0	2382
WISCONSIN	2810	0	6575	9385	0	0	0	9385
EXPORTED 3/	0	0	14	14	0	0	0	0
TOTAL	5185	0	6596	11781	0	0	0	11767
TOTAL ROUNDWOOD								
MICHIGAN	931731	0	11759	943490	0	0	0	943490
MINNESOTA	0	1011271	10932	1022203	0	2621	2621	1024824
WISCONSIN	408769	181700	1646460	2236929	47589	54331	101920	2338849
EXPORTED 3/	12588	16332	3281	32201	0	0	0	0
TOTAL	1353088	1209303	1672432	4234823	47589	56952	104541	4307163

TABLE 1 CONTINUED ON NEXT PAGE

TABLE 1 CONTINUED

SPECIES AND DESTINATION	PRODUCTION BY STATES 1/				IMPORTS			TOTAL RECEIPTS
	MICHIGAN	MINNESOTA	WISCONSIN	REGIONAL TOTAL	OTHER U.S. 2/	CANADA	TOTAL IMPORTS	
RESIDUE, SOFTWOOD								
MICHIGAN	13878	0	296	14174	0	2692	2692	16866
MINNESOTA	0	31772	0	31772	21567	8368	29935	61707
WISCONSIN	7674	0	38125	45799	155246	55319	210565	256364
EXPORTED 3/	2738	1765	0	4503	0	0	0	0
TOTAL	24290	33537	38421	96248	176813	66379	243192	334937
RESIDUE, HARDWOODS								
MICHIGAN	135280	0	11611	146891	7354	0	7354	154245
MINNESOTA	0	65617	12714	78331	4216	8464	12680	91011
WISCONSIN	17918	203	99209	117330	0	0	0	117330
EXPORTED 3/	10883	0	5547	16430	0	0	0	0
TOTAL	164081	65820	129081	358982	11570	8464	20034	362586
ALL WOOD MATERIAL								
MICHIGAN	1080889	0	23666	1104555	7354	2692	10046	1114601
MINNESOTA	0	1108660	23646	1132306	25783	19453	45236	1177542
WISCONSIN	434361	181903	1783794	2400058	202835	109650	312485	2712543
EXPORTED 3/	26209	18097	8828	53134	0	0	0	0
TOTAL	1541459	1308660	1839934	4690053	235972	131795	367767	5004686

1/ VERTICAL COLUMNS OF FIGURES UNDER BOX HEADING -PRODUCTION BY STATES- PRESENT THE AMOUNT OF PULPWOOD CUT IN EACH STATE.
2/ MOSTLY WESTERN STATES.
3/ PULPWOOD SHIPPED TO MILLS OUTSIDE OF REGION.
4/ PONDEROSA PINE.

from local wood-using plants.[2] Output from residue dipped slightly.

The roundwood harvest climbed 558,000 cords. The greatest increase was in aspen (218,000 cords), followed by elm (166,000 cords), birch (74,000 cords), pine (66,000 cords), and maple (61,000 cords). Harvest of elm was more than triple that in 1975 due to the increased use of trees with Dutch elm disease.

Wisconsin — Production increased 335,000 cords to 1.84 million cords. Wisconsin supplied 85 percent of the elm pulpwood harvested in the Lakes States as Dutch elm disease spread throughout the State. Other major harvest gains were in aspen (105,000 cords) and pine (46,000 cords). Birch output surpassed any previous year. Production from roundwood climbed in all areas of the State; the largest volume gain was in northeastern Wisconsin. Top-producing counties were Marinette, Oneida, and Price.

Michigan — Michigan supplied 1.35 million cords of pulpwood, up 261,000 cords from 1975. Harvest increases were greatest for aspen (55,000 cords), pine (46,000 cords), and maple (40,000 cords). The pine harvest advanced to a new peak, but the spruce cut hit a new low. Harvesting intensified in all areas of Michigan; the largest volume increase was in the eastern Upper Peninsula. Marquette, Delta, and Iron counties were the leading producers.

Minnesota — Producers reduced their output for the second consecutive year to 1.31 million cords. Softwood production declined 130,000 cords while output from hardwoods rose 80,000 cords. Pine harvesting fell to the lowest level since 1949; but birch production reached 46,000 cords, a new high. Aspen output climbed 57,000 cords. All of the decline in pulpwood cutting was in the Northern Aspen-birch Unit. Even so, this Unit supplied 59 percent of all roundwood cut for pulpwood. Top-yielding counties were St. Louis, Koochiching, and Itasca.

The distribution of the harvest is shown in two ways: first, the amount of pulpwood cut relative to the merchantable volume in major pulpwood species (fig. 1); and second, the amount of pulpwood cut relative to commercial forest area (fig. 2). Cutting pressure was heaviest (per 1,000 cords of merchantable volume in principal pulpwood species) in central and northeastern Wisconsin and eastern Upper Michigan.

[2] *Residue is the byproduct from sawmills, veneer mills, cooperage mills, and other wood-using plants that is used for pulping. Residue includes slabs, edgings, veneer cores, sawdust, wood flour, and chips manufactured from slabs, edgings, and veneer cores.*

Figure 1. — *Cords of pulpwood bolts and logs harvested per 1,000 cords of merchantable volume in principal pulpwood species by Forest Survey Unit, 1976. (The heavy lines delineate the boundaries of the Forest Survey Units in each State.)*

Receipts

Forty-one Lake States pulpmills received about 5 million cords of pulpwood in 1976. Thirty-seven of these mills used aspen and 20 used birch (table 2). Aspen receipts surged up by 213,000 cords. Demand for elm rose 166,000 cords and demand for birch increased 74,000 cords to a near record level.

Canada continued to increase shipments of softwood residue to the Lake States for the fourth consecutive year; Wisconsin was the primary market.

Imports from other States advanced 15 percent to 236,000 cords; western States furnished 95 percent. Three-fourths of these imports were softwood residue chips from South Dakota, Colorado, Montana, and Wyoming.

Wisconsin — Wood procurement shifted upward 369,000 cords after falling 791,000 cords in 1975. Birch demand reached a new high while spruce deliveries plunged to the lowest level recorded. Twelve percent of the wood came from outside the Lake States.

Michigan — Pulpwood procurement rose 271,000 cords and included many species. For the first time, pine demand exceeded 200,000 cords. Deliveries of softwood and hardwood residues for pulping were at new highs.

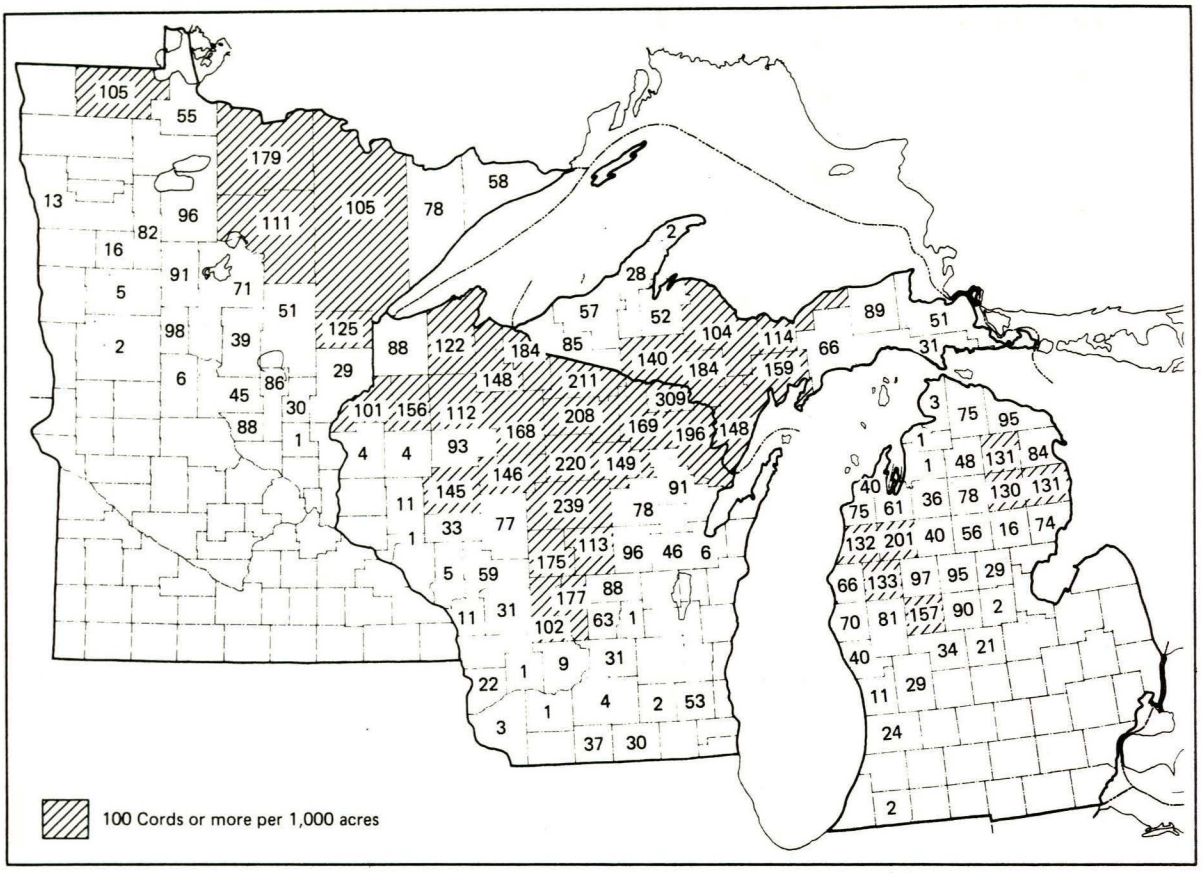


Figure 2. — *Cords of pulpwood cut per 1,000 acres of stocked commercial forest land in principal pulpwood-producing counties, 1976. Acres of stocked commercial forest land were determined during the last forest survey in each State.*

Table 2. — *Industrial plants using the different species of wood for pulping in 1976* (In numbers)

Species and kind of material	Lake States	Minnesota	Wisconsin	Michigan
Aspen	37	9	20	8
Balsam fir	18	5	10	3
Birch	20	3	11	6
Hemlock	10	--	8	2
Pine	10	2	4	3
Spruce	19	4	12	3
Tamarack	7	1	5	1
Maple	15	--	10	5
Oak	11	1	5	5
Other hardwoods	17	2	10	5
Wood chips (residue)	19	5	8	6
Slabwood and other residue	7	2	3	2
Total Plants 1/	41	9	24	8

1/ Some plants use more than one species, so numbers in columns cannot be added.

Industry Trends and Analysis

Average daily production was 10,600 tons per day (table 3). One mill changed ownership, but none closed. Strikes and work stoppages were less disruptive than in 1975. New pulping capacity in the Lake States will require at least 80,000 additional cords of pulpwood per year.

Aspen pulpwood production continued to decline slightly from 45 percent of the roundwood harvest in 1975 to 44 percent in 1976. During the last decade the annual aspen cut has shown little upward movement while the annual birch output has tripled.

Demand for balsam fir continues strong. Balsam fir harvesting remained above 200,000 cords for the fourth successive year after averaging 158,000 cords annually from 1968 to 1972.

Table 3. — *Active woodpulp mills in the Lake States by location, type of pulp produced, and average daily production, 1976*

COMPANY	LOCATION	AVERAGE PRODUCTION IN TONS PER 24 HOURS 1/				
		TOTAL	SULFITE	SULFATE	GROUNDWOOD AND OTHER MECHANICAL	SEMI-CHEMICAL
MICHIGAN:						
ABITIBI CORP.	ALPENA	430	0	0	430	0
CELOTEX CORP.	L ANSE	270	0	0	270	0
HOERNER WALDORF CORP.	ONTONAGON	220	0	0	0	220
MANISTIQUE PULP AND PAPER CO.	MANISTIQUE	90	0	0	90	0
MEAD CORP.	ESCANABA	750	0	600	150	0
MENASHA CORP.	OTSEGO	225	0	0	0	225
PACKAGING CORP.OF AMERICA	FILER CITY	600	0	0	0	600
WARREN CO., S.D.	MUSKEGON	250	0	250	0	0
TOTAL.....	8 PLANTS.....	2835	0	850	940	1045
MINNESOTA :						
BLANDIN PAPER CO.	GRAND RAPIDS	350	0	0	350	0
HENNEPIN PAPER CO.	LITTLE FALLS	75	0	0	75	0
BOISE CASCADE CORP.	INTERNATIONAL FALLS	880	0	340	540	0
POTLATCH CORP.	CLOQUET	520	120	400	0	0
SUPERWOOD CORP.	HEMIDJI	90	0	0	90	0
ST REGIS PAPER CO.	SARTELL	125	0	0	125	0
SUPERWOOD CORP.	DULUTH	350	0	0	350	0
HOERNER WALDORF CORP.	ST PAUL	300	0	0	0	300
CONWED CORP.	CLOQUET	350	0	0	350	0
TOTAL.....	9 PLANTS.....	3040	120	740	1880	300
WISCONSIN :						
AMERICAN CAN CO.	GREEN BAY	210	150	0	60	0
WEYERHAEUSER CO.	ROTHSCHILD	200	200	0	0	0
BADGER PAPER MILLS	PESHTIGO	110	110	0	0	0
NCR-APPLETON PAPER DIV.	COMBINED LOCKS	200	0	0	200	0
CONSOLIDATED PAPERS , INC.	APPLETON	130	130	0	0	0
CONSOLIDATED PAPERS , INC.	STEVENS POINT	100	0	0	100	0
CONSOLIDATED PAPERS , INC.	WISCONSIN RAPIDS	640	0	395	245	0
GREEN BAY PACKAGING, INC.	GREEN BAY	200	0	0	0	200
FLAMBEAU PAPER CO.	PARK FALLS	115	115	0	0	0
MINTEC PAPER CORP.	KIMBERLY	115	0	0	115	0
PENTAIR INDUSTRIES	NIAGARA	170	0	0	170	0
MOSINEE PAPER MILLS CO.	MOSINEE	200	0	200	0	0
NEKOOSA PAPERS INC.	NEKOOSA	310	0	310	0	0
NEKOOSA PAPERS INC.	PORT EDWARDS	215	215	0	0	0
OWENS-ILLINOIS	TOMAHAWK	620	0	0	0	620
PROCTER AND GAMBLE INC.	GREEN BAY	2/	2/	2/	2/	2/
SCOTT PAPER CO.	OCONTO FALLS	115	115	0	0	0
ST REGIS PAPER CO.	RHINELANDER	75	75	0	0	0
FLINKOTE COMPANY	CORNELL	100	0	0	100	0
SUPERIOR FIBRE PRODUCTS CO.	SUPERIOR	180	0	0	180	0
THILMANY PULP AND PAPER CO	KAUKAUNA	400	0	400	0	0
TOMAHAWK PULP CO., INC.	TOMAHAWK	50	0	0	50	0
WAUSAU PAPER MILLS CO.	BROKAW	185	185	0	0	0
BOISE CASCADE CORP.	PHILLIPS	100	0	0	100	0
TOTAL.....	24 PLANTS.....	4740	1295	1305	1320	820
ALL STATES	41 PLANTS	10615	1415	2895	4140	2165

1/ LOCKWOOD'S DIRECTORY OF THE PAPER AND ALLIED INDUSTRIES-1977.
2/ CAPACITY NOT AVAILABLE.

CENTRAL STATES

Production

Pulpwood demand strengthened because paper and paperboard requirements expanded as part of the national business recovery. Central States producers increased their pulpwood output 14 percent to 465,000 cords (table 4). For the first time, Central States hardwood residue used for pulp exceeded 300,000 cords, two-thirds of the total production. The harvest of soft hardwood pulpwood dropped to the lowest volume recorded. Demand for hard hardwoods recovered.

Exports increased 29,000 cords, the third straight yearly gain. About half (49 percent) of the production was shipped beyond the Central States to Ohio, Kentucky, Michigan, Minnesota, and Wisconsin. More than three-fourths (78 percent) of the exports was hardwood residue. Export markets for hardwood residue are important revenue sources for sawmill operators in Indiana, Missouri, and Illinois.

Table 4. — *Production and imports of pulpwood, Central States, 1976*
(In standard cords, unpeeled)[1]

SPECIES AND DESTINATION	PRODUCTION BY STATES 2/					IMPORTS			TOTAL RECEIPTS
	ILLINOIS	INDIANA	IOWA	MISSOURI	REGIONAL TOTAL	LAKE STATES	OTHER U.S.	TOTAL IMPORTS	
SOFTWOODS									
ILLINOIS	2322	0	0	184	2506	0	0	0	2506
EXPORTED 4/	1504	0	0	184	1688	0	0	0	0
TOTAL	3826	0	0	368	4194	0	0	0	2506
SOFT HARDWOODS									
ILLINOIS	6220	1480	0	6136	13836	0	0	0	13836
IND.,IOWA,MO. 3/	5137	15544	9385	6544	36610	1396	0	1396	38006
EXPORTED 4/	4366	531	0	992	5889	0	0	0	0
TOTAL	15723	17555	9385	13672	56335	1396	0	1396	51842
HARD HARDWOODS									
ILLINOIS	1200	233	0	8	1441	0	0	0	1441
IND.,IOWA,MO. 3/	8011	15463	15212	2819	41505	1885	0	1885	43390
EXPORTED 4/	7424	24683	0	9058	41165	0	0	0	0
TOTAL	16635	40379	15212	11885	84111	1885	0	1885	44831
TOTAL ROUNDWOOD									
ILLINOIS	9742	1713	0	6328	17783	0	0	0	17783
IND.,IOWA,MO. 3/	13148	31007	24597	9363	78115	3281	0	3281	81396
EXPORTED 4/	13294	25214	0	10234	48742	0	0	0	0
TOTAL	36184	57934	24597	25925	144640	3281	0	3281	99179
RESIDUE,SOFTWOOD									
ILLINOIS	3120	0	378	5063	8561	3470	4653	8123	16684
IND.,IOWA,MO. 3/	0	0	0	0	0	0	4800	4800	4800
TOTAL	3120	0	378	5063	8561	3470	9453	12923	21484
RESIDUE,HARDWOODS									
ILLINOIS	32657	6438	0	4154	43249	10916	0	10916	54165
IND.,IOWA,MO. 3/	6756	39268	15623	29535	91182	5514	0	5514	96696
EXPORTED 4/	37591	68354	4216	67155	177316	0	0	0	0
TOTAL	77004	114060	19839	100844	311747	16430	0	16430	150861
ALL WOOD MATERIAL									
ILLINOIS	45519	8151	378	15545	69593	14386	4653	19039	88632
IND.,IOWA,MO. 3/	19904	70275	40220	38898	169297	8795	4800	13595	182892
EXPORTED 4/	50885	93568	4216	77389	226058	0	0	0	0
TOTAL	116308	171994	44814	131832	464948	23181	9453	32634	271524

1/ FACTORS USED IN CONVERTING TO STANDARD GREEN CORDS (128 CU. FT.) WERE:
4,500 POUNDS OF SOFT HARDWOOD ROUNDWOOD;
5,000 POUNDS OF HARD HARDWOOD OR CONIFEROUS ROUNDWOOD;
4,100 POUNDS OF SOFTWOOD CHIPS (GREEN);
4,400 POUNDS OF HARDWOOD CHIPS (GREEN);
2,500 POUNDS OF CHIPS (ALL SPECIES,DRY).
2/ VERTICAL COLUMNS OF FIGURES UNDER BOX HEADING -PRODUCTION BY STATES- PRESENT THE AMOUNT OF PULPWOOD CUT IN EACH STATE.
3/ COMBINED TO PREVENT DISCLOSURE OF INDIVIDUAL MILL RECEIPTS.
4/ PULPWOOD SHIPPED TO MILLS OUTSIDE THE REGION.

Indiana's position improved as the leading producer. Missouri, in second place, led Illinois in production for the third consecutive year. Contrary to the other States, Iowa's production dropped. Each of the Central States supplied more hardwood residue for pulping in 1976 than previously.

Loggers cut pulpwood in 94 counties: 31 in Illinois, 30 in Indiana, 23 in Missouri, and 10 in Iowa (fig. 3). Harvest areas expanded in southern and southeastern Illinois, southwestern Indiana, and Central Iowa; and contracted in western Illinois, western and northeastern Missouri, and eastern and southeastern Iowa.

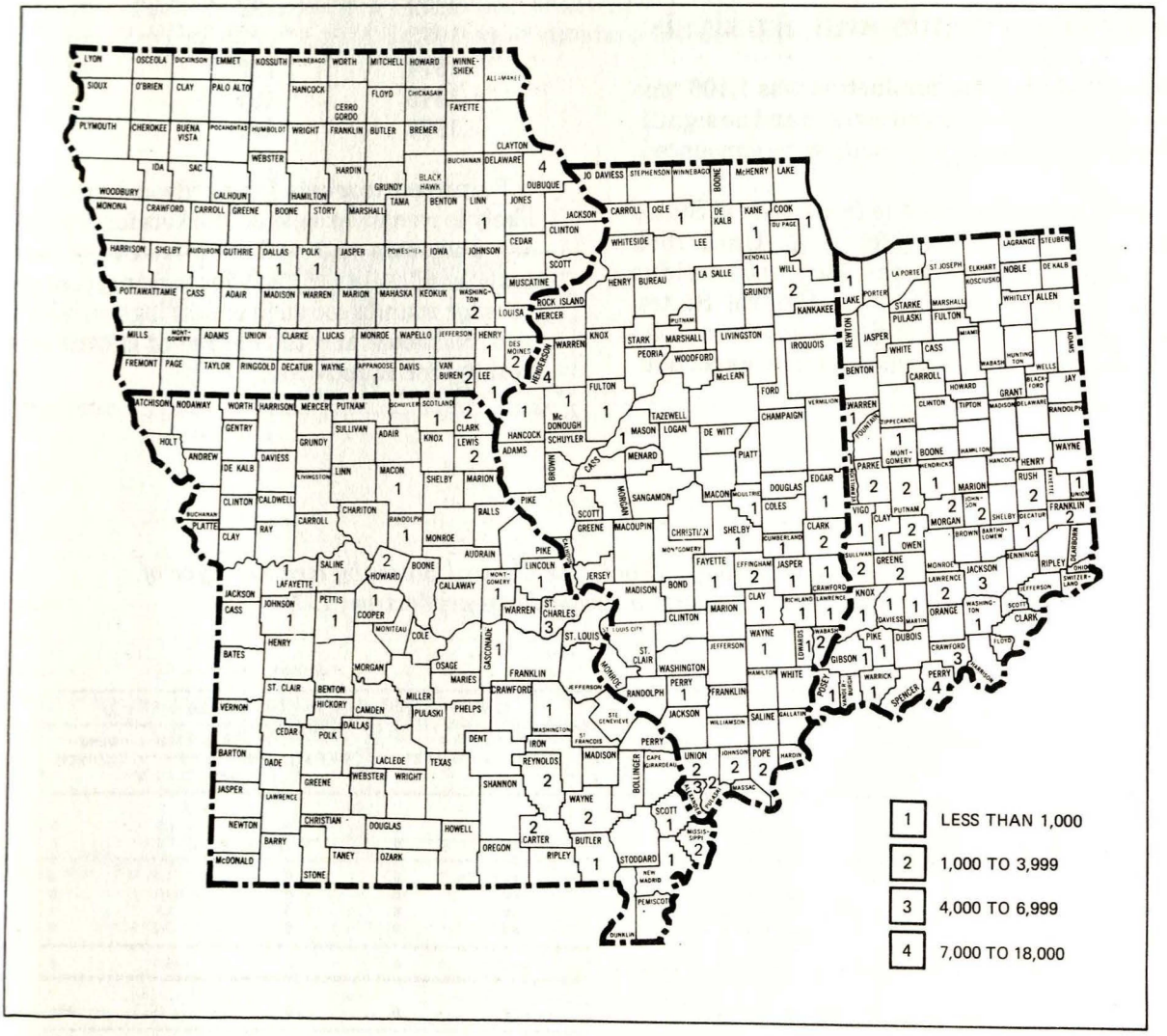


Figure 3. — *Harvest of pulpwood bolts in the Central States by counties, in standard cords, 1976.*

Receipts

Twelve Central States pulpmills received 272,000 cords of pulpwood, up 15 percent from 1975 when receipts dropped sharply. Nearly two-thirds was wood residue. Twelve percent of the receipts was imported from 11 widely scattered States.

Industry Trends and Analysis

Average daily pulp production was 1,100 tons (table 5). No mills changed owners and no significant changes in pulping capacity were announced.

In 1965 hardwood residue from Central States mills was initially used for pulp. Until 1969 more than 85 percent of this hardwood residue was used annually within the Central States. Then markets in nearby States grew rapidly; more than half of this residue is now exported:

Year	Hardwood residue exports	
	(Thousand cords)	(Precent of total hardwood residue)
1965	2	8
1966	4	12
1967	5	8
1968	15	13
1969	28	15
1970	55	31
1971	82	41
1972	92	41
1973	97	40
1974	122	43
1975	155	57
1976	177	57

Pulpwood markets for hardwood residue are likely to remain excellent. Markets for roundwood are uncertain and will be affected by logging costs; availability of labor for logging; competing uses for roundwood such as saw logs, veneer logs, and fuelwood; and the degree of substitution of residue for roundwood.

Table 5. — *Active woodpulp mills in the Central States by location, type of pulp produced, and average daily production, 1976*

COMPANY	LOCATION	AVERAGE PRODUCTION IN TONS PER 24 HOURS 1/				
		TOTAL	SULFITE	SULFATE	GROUNDWOOD AND OTHER MECHANICAL	SEMI-CHEMICAL
ILLINOIS:						
BIRD AND SON , INC.	CHICAGO	40	0	0	40	0
CELOTEX CORP.	PEORIA	90	0	0	90	0
CERTAIN-TEED PRODUCTS CORP.	EAST ST LOUIS	100	0	0	100	0
FLINTKOTE CO , THE	MT CARMEL	40	0	0	40	0
GAF CORP.	JOLIET	100	0	0	100	0
JOHNS-MANVILLE PRODUCTS CORP.	WAUKEGAN	50	0	0	50	0
CELOTEX CORP.	WILMINGTON	30	0	0	30	0
TOTAL.....	7 PLANTS.....	450	0	0	450	0
INDIANA :						
WESTON PAPER AND MFG. CO.	TERRE HAUTE	270	0	0	0	270
TOTAL.....	1 PLANT.....	270	0	0	0	270
IOWA :						
CELOTEX CORP.	DUBUQUE	90	0	0	90	0
CONSOLIDATED PACKAGING CORP.	FORT MADISON	140	0	0	0	140
TOTAL.....	2 PLANTS.....	230	0	0	90	140
MISSOURI :						
GAF CORP.	KANSAS CITY	90	0	0	90	0
HUEBERT FIBREBOARD, INC.	BOONEVILLE	60	0	0	60	0
TOTAL.....	2 PLANTS.....	150	0	0	150	0
ALL STATES	12 PLANTS	1100	0	0	690	410

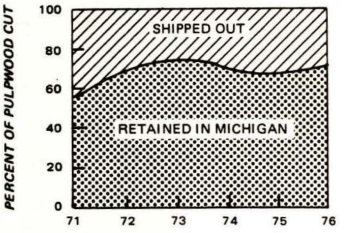
1/ LOCKWOOD'S DIRECTORY OF THE PAPER AND ALLIED INDUSTRIES-1977.

APPENDIX

Table 6. — *Lake States pulpwood production by State of origin and destination, 1972-1976* (In thousand standard cords, roughwood basis)

Michigan

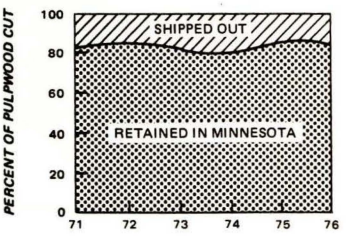
	Total cut	Destination of pulpwood			
		Minnesota	Wisconsin	Michigan	Other
1972	1,401	--	470	917	14
1973	1,585	--	418	1,131	36
1974	1,843	--	534	1,290	19
1975	1,280	--	449	814	17
1976	1,541	--	434	1,081	26
5-Year average	1,530	--	461	1,047	22



Minnesota

	Total cut	Destination of pulpwood			
		Minnesota	Wisconsin	Michigan	Other
1972	1,354	1,168	166	--	20
1973	1,376	1,152	194	*	30
1974	1,578	1,297	262	*	19
1975	1,359	1,173	178	--	8
1976	1,309	1,109	182	--	18
5-Year average	1,395	1,180	196	*	19

*Less than 500 cords.



Wisconsin

	Total cut	Destination of pulpwood			
		Minnesota	Wisconsin	Michigan	Other
1972	1,537	28	1,493	2	14
1973	1,758	14	1,671	55	18
1974	2,053	14	2,004	25	10
1975	1,505	20	1,460	19	6
1976	1,840	23	1,784	24	9
5-Year average	1,739	20	1,683	25	11

*Less than 500 cords.

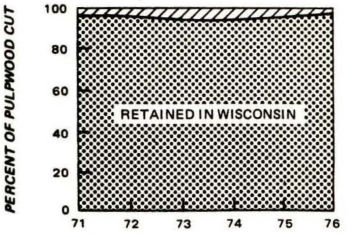


Table 7. — *Lake States pulpwood production from roundwood by Forest Survey Unit and destination by State, 1976* (In hundred standard cords, roughwood basis)

MICHIGAN

UNIT	TOTAL CUT	DESTINATION OF PULPWOOD			
		MICHIGAN	MINNESOTA	WISCONSIN	OTHER
E. UPPER PENINSULA	3792	2358	0	1341	93
W. UPPER PENINSULA	4275	1704	0	2571	0
N. LOWER PENINSULA	5273	5064	0	176	33
S. LOWER PENINSULA	192	192	0	0	0
TOTAL	13532	9318	0	4088	126

MINNESOTA

UNIT	TOTAL CUT	DESTINATION OF PULPWOOD			
		MICHIGAN	MINNESOTA	WISCONSIN	OTHER
NORTHEASTERN	7084	0	5930	991	163
CENTRAL PINE	4629	0	3835	794	0
RAINY RIVER	371	0	348	23	0
SOUTHEASTERN	9	0	0	9	0
TOTAL	12093	0	10113	1817	163

WISCONSIN

UNIT	TOTAL CUT	DESTINATION OF PULPWOOD			
		MICHIGAN	MINNESOTA	WISCONSIN	OTHER
NORTHEASTERN	7125	110	0	7015	0
NORTHWESTERN	6216	8	109	6099	0
CENTRAL	3198	0	0	3198	0
SOUTHWESTERN	80	0	0	47	33
SOUTHEASTERN	105	0	0	105	0
TOTAL	16724	118	109	16464	33

Table 8. — *Lake States pulpwood production from roundwood by species, State, and Forest Survey Unit, 1972-1976* (In thousand standard cords, roughwood basis)

Michigan

Unit	Aspen					Balsam fir				
	Annual Production					Annual Production				
	1972	1973	1974	1975	1976	1972	1973	1974	1975	1976
E. 1/2 Upper Peninsula	89	93	119	68	93	33	41	40	36	41
W. 1/2 Upper Peninsula	188	225	294	138	176	24	26	32	34	31
N. 1/2 Lower Peninsula	241	275	282	228	216	3	2	2	4	3
S. 1/2 Lower Peninsula	11	10	11	1	6	--	--	--	--	--
Total	529	603	706	435	491	60	69	74	74	75
Minnesota										
Northern aspen-birch	373	407	460	357	372	40	37	52	76	44
Northern pine	264	228	282	236	276	26	28	41	45	30
Central hardwood	52	38	62	22	25	--	*	--	--	*
Prairie	--	--	--	--	--	--	--	--	--	--
Total	689	673	804	615	673	66	65	93	121	74
Wisconsin										
Northeastern	349	380	383	286	345	25	34	49	64	61
Northwestern	311	331	342	276	308	23	32	35	33	26
Central	23	46	71	25	38	1	1	1	1	2
Southwestern	1	3	1	--	--	--	--	--	--	--
Southeastern	*	1	*	1	2	--	--	--	--	--
Total	684	761	797	588	693	49	67	85	98	89
Lake States	1,902	2,037	2,307	1,638	1,857	175	201	252	293	238

*Less than 500 cords.

Michigan

Unit	Birch					Hemlock				
	Annual Production					Annual Production				
	1972	1973	1974	1975	1976	1972	1973	1974	1975	1976
E. 1/2 Upper Peninsula	10	19	24	6	20	17	22	13	16	35
W. 1/2 Upper Peninsula	7	16	35	8	29	33	36	39	34	44
N. 1/2 Lower Peninsula	19	25	25	22	20	--	--	*	--	*
S. 1/2 Lower Peninsula	--	--	*	*	*	--	--	--	--	--
Total	36	60	84	36	69	50	58	52	50	79
Minnesota										
Northern aspen-birch	16	18	15	16	21	--	--	--	--	--
Northern pine	26	23	24	18	23	--	--	--	--	--
Central hardwood	*	1	5	2	2	--	--	--	--	--
Prairie	--	--	*	*	--	--	--	--	--	--
Total	42	42	44	36	46	--	--	--	--	--
Wisconsin										
Northeastern	20	30	38	33	50	26	21	32	30	27
Northwestern	26	40	59	44	56	13	10	9	13	9
Central	*	1	5	6	8	2	1	3	3	7
Southwestern	1	1	*	*	--	--	--	--	--	--
Southeastern	--	--	*	*	*	--	*	1	*	--
Total	47	72	102	83	114	41	32	45	46	43
Lake States	125	174	230	155	229	91	90	97	96	122

*Less than 500 cords.

TABLE 8 CONTINUED ON NEXT PAGE

Michigan

TABLE 8 CONTINUED

Unit	Pine					Spruce				
	Annual Production					Annual Production				
	1972	1973	1974	1975	1976	1972	1973	1974	1975	1976
E. 1/2 Upper Peninsula	84	67	87	59	88	20	28	19	18	17
W. 1/2 Upper Peninsula	37	36	36	25	43	18	18	20	25	14
N. 1/2 Lower Peninsula	102	88	127	143	140	--	*	1	2	1
S. 1/2 Lower Peninsula	5	12	9	8	10	--	--	--	--	--
Total	228	203	259	235	281	38	46	40	45	32
Minnesota										
Northern aspen-birch	136	125	139	116	104	140	159	154	153	129
Northern pine	79	77	98	79	64	52	54	51	49	46
Central hardwood	1	3	2	4	4	--	*	*	--	*
Prairie	--	*	*	--	--	*	2	2	--	--
Total	216	205	239	199	172	192	215	207	202	175
Wisconsin										
Northeastern	53	43	62	46	55	9	10	13	18	14
Northwestern	99	100	100	64	96	4	6	6	7	4
Central	90	85	125	122	124	*	--	*	*	1
Southwestern	2	3	2	2	5	--	--	--	--	--
Southeastern	2	1	2	5	6	--	--	*	--	--
Total	246	232	291	239	286	13	16	19	25	19
Lake States	690	640	789	673	739	243	277	266	272	226

*Less than 500 cords.

Michigan

Unit	Tamarack					Miscellaneous hardwoods				
	Annual production					Annual production				
	1972	1973	1974	1975	1976	1972	1973	1974	1975	1976
E. 1/2 Upper Peninsula	2	2	1	1	*	50	93	124	35	82
W. 1/2 Upper Peninsula	1	3	1	1	1	97	123	148	57	88
N. 1/2 Lower Peninsula	--	--	--	--	0	153	145	144	124	147
S. 1/2 Lower Peninsula	--	--	--	--	0	9	5	8	2	3
Total	3	5	2	2	1	309	366	424	218	320
Minnesota										
Northern aspen-birch	12	14	25	31	19	29	29	24	12	19
Northern pine	19	17	18	25	17	1	2	6	7	7
Central hardwood	--	1	--	*	*	--	5	6	3	6
Prairie	*	1	*	*	1	--	--	*	--	--
Total	31	33	43	56	37	30	36	36	22	32
Wisconsin										
Northeastern	2	1	1	2	2	128	150	183	89	158
Northwestern	1	*	1	1	1	84	104	140	81	122
Central	*	--	*	1	*	111	136	174	71	140
Southwestern	--	--	--	--	--	5	6	3	2	3
Southeastern	--	--	--	--	--	5	4	6	1	2
Total	3	1	2	4	3	333	400	506	244	425
Lake States	37	39	47	62	41	672	802	966	484	777

TABLE 8 CONTINUED ON NEXT PAGE

Michigan

TABLE 8 CONTINUED

Unit	All species** Annual production				
	1972	1973	1974	1975	1976
E. 1/2 Upper Peninsula	308	365	430	241	379
W. 1/2 Upper Peninsula	406	483	607	323	428
N. 1/2 Lower Peninsula	518	535	581	523	527
S. 1/2 Lower Peninsula	25	27	28	11	19
Total	1,257	1,410	1,646	1,098	1,353
Minnesota					
Northern aspen-birch	746	789	869	761	708
Northern pine	467	429	520	459	463
Central hardwood	53	48	75	31	37
Prairie	*	3	2	*	1
Total	1,266	1,269	1,466	1,251	1,209
Wisconsin					
Northeastern	612	669	761	568	712
Northwestern	561	623	692	519	622
Central	227	270	379	229	320
Southwestern	9	13	6	4	8
Southeastern	7	6	9	7	10
Total	1,416	1,581	1,847	1,327	1,672
Lake States	3,939	4,260	4,959	3,676	4,234

*Less than 500 cords.

**Includes small quantity of cedar not shown in other parts of table.

Table 9. — *Lake States pulpwood production from roundwood by county and species, 1976* (In standard cords, roughwood basis)

MICHIGAN

UNIT AND COUNTY 1/	CEDAR	BALSAM FIR	HEMLOCK	JACK PINE	RED PINE	WHITE PINE	SPRUCE	TAMARACK	ASH	ASPEN	BALSAM POPLAR	BASSWOOD
E. UPPER PENINSULA												
ALGER	1135	2525	10811	11836	3845	2519	1080	36	119	6848	2857	160
CHIPPEWA	182	3708	3011	17843	1289	797	2997	6	124	5234	457	145
DELTA	463	10080	5906	7832	2231	1305	2468	15	664	32452	9187	120
LUCE	483	7102	5599	15574	1800	1701	3840	16	95	2349	1274	105
MACKINAC	101	3903	1098	2240	291	280	1198	3	102	2843	1049	122
MENOMINEE	200	11189	2936	1009	630	462	2122	487	2690	35323	1460	115
SCHOOLCRAFT	441	3180	5202	9062	4087	1175	2839	14	137	7720	1407	121
TOTAL	3005	41687	34563	65396	14173	8239	16544	577	3931	92769	17691	888
W. UPPER PENINSULA												
BARAGA	154	661	4144	3256	305	357	719	27	227	12621	17	203
DICKINSON	184	4078	2226	718	437	480	881	225	490	55904	2484	115
GOGEBIC	17	2551	15429	456	464	47	174	1	121	23272	0	71
HOUGHTON	224	1436	3242	760	444	490	481	50	87	5471	6	59
IRON	126	11336	2583	4896	1199	438	6114	160	679	37141	222	204
KEWEENAW	1	2	134	1	1	1	264	0	0	0	0	0
MARQUETTE	1497	9757	13234	20644	3372	3354	5117	96	376	24235	1873	265
ONTONAGON	183	772	3435	231	321	398	207	17	212	16792	5	38
TOTAL	2386	30593	44427	30967	6543	5565	13957	576	2192	175436	4607	955
N. LOWER PENINSULA												
ALCONA	0	214	22	2529	22	0	31	0	158	22507	1043	119
ALPENA	0	693	43	574	43	22	318	0	144	10102	546	148
ANTRIM	0	0	0	0	0	0	0	0	0	218	0	0
ARENAC	0	0	0	47	0	0	0	0	0	0	0	0
BENZIE	0	0	0	0	0	0	0	0	78	4824	0	78
CHARLEVOIX	0	100	0	0	0	0	53	0	0	0	0	0
CHEBOYGAN	0	485	0	1389	0	0	202	0	160	14630	795	178
CLARE	0	0	0	1301	0	0	0	0	53	15385	0	52
CRAWFORD	0	0	0	16757	0	0	0	0	27	2050	0	21
EMMET	0	112	0	312	0	0	65	0	0	0	0	0
GLADWIN	0	0	0	0	0	0	0	0	21	3827	0	21
GRAND TRAVERSE	0	0	0	215	2694	0	0	0	104	4389	0	52
IOSCO	0	0	0	14280	0	0	0	0	26	1635	44	26
ISABELLA	0	0	0	0	157	0	0	0	51	7264	23	40
KALKASKA	0	0	0	2759	1053	0	0	0	42	2920	0	42
LAKE	0	0	0	9466	0	0	0	0	1146	9066	285	863
LEELANAU	0	0	0	0	43	0	0	0	156	1196	0	126
MANISTEE	0	0	0	2456	2000	0	0	0	338	11123	9	239
MASON	0	0	0	0	362	0	0	0	115	4595	3	117
MECOSTA	0	0	0	0	4759	0	0	0	281	10263	111	333
MIDLAND	0	0	0	0	15	0	0	0	0	302	0	0
MISSAUKEE	0	0	0	125	1312	0	0	0	104	5096	0	52
MONTMORENCY	0	446	0	9071	0	0	263	0	150	17832	982	166
NEWAYGO	0	0	0	0	4024	0	0	0	671	6646	234	601
OCEANA	0	0	0	0	2788	0	0	0	184	2600	35	208
OGEMAW	0	0	0	434	0	0	0	0	0	2219	0	0
OSCEOLA	0	0	0	0	2061	0	0	0	396	8267	162	478
OSCODA	0	12	0	11444	0	0	2	0	184	17874	377	141
OTSEGO	0	21	0	9441	61	0	0	0	0	1256	0	21
PRESQUE ISLE	0	763	0	4803	22	0	423	0	80	13736	715	89
ROSCOMMON	0	0	0	3836	0	0	0	0	21	6666	0	21
WEXFORD	0	0	0	14767	12495	0	0	0	112	7645	1	108
TOTAL	0	2846	65	106008	33911	22	1357	0	4802	216133	5365	4340
S. LOWER PENINSULA												
ALLEGAN	0	0	0	851	1000	0	0	0	5	942	0	0
CASS	0	0	0	0	110	0	0	0	0	11	0	0
GRATIOT	0	0	0	0	19	0	0	0	0	890	0	0
KENT	0	0	0	0	1294	0	0	0	23	1674	1	8
MONTCALM	0	0	0	0	1091	0	0	0	41	2499	3	13
MUSKEGON	0	0	0	0	5058	0	0	0	8	355	0	0
OTTAWA	0	0	0	0	876	0	0	0	0	0	0	0
TOTAL	0	0	0	851	9448	0	0	0	77	6371	4	21
STATE TOTAL	5391	75126	79055	203222	64075	13826	31858	1153	11002	490709	27667	6204

1/ INCLUDES ONLY THOSE COUNTIES THAT SUPPLIED PULPWOOD IN 1976.

TABLE 9 CONTINUED ON NEXT PAGE

TABLE 9 CONTINUED

MICHIGAN

UNIT AND COUNTY 1/	BEECH	WHITE BIRCH	YELLOW BIRCH	COTTON-WOOD	ELM	HICKORY	HARD MAPLE	SOFT MAPLE	RED OAK	WHITE OAK	OTHER HARD-WOODS	ALL SPECIES
E. UPPER PENINSULA												
ALGER	2943	3346	795	0	1650	0	2731	5682	35	2	56	61011
CHIPPEWA	385	347	219	0	185	0	966	491	27	0	42	38455
DELTA	2061	6123	827	0	6188	0	3199	7115	31	1	161	98429
LUCE	1007	1785	312	0	576	0	998	2058	23	1	38	46736
MACKINAC	480	1270	144	0	319	0	485	1104	32	0	37	17101
MENOMINEE	926	1990	894	0	5196	0	3457	3777	47	2	445	75357
SCHOOLCRAFT	900	1671	278	0	690	0	903	2193	27	3	43	42093
TOTAL	8702	16532	3469	0	14804	0	12739	22420	222	9	822	379182
W. UPPER PENINSULA												
BARAGA	0	246	671	0	653	0	2312	677	119	0	145	27514
DICKINSON	22	3455	765	0	3100	0	2908	3486	151	0	107	82156
GOGEBIC	0	2008	1750	0	1881	0	3686	1347	10	0	355	53640
HOUGHTON	0	1021	254	0	314	0	940	264	107	0	86	15736
IRON	1	1666	4909	0	5977	0	11400	5127	183	0	1039	95400
KEWEENAW	0	0	0	0	0	0	0	0	0	0	0	404
MARQUETTE	5	6421	2358	0	3322	0	7525	8472	292	0	97	112317
ONTONAGON	0	188	3471	0	3457	0	7135	2637	126	0	737	40362
TOTAL	28	15005	14118	0	18704	0	35906	22010	988	0	2566	427529
N. LOWER PENINSULA												
ALCONA	92	1343	0	0	44	0	40	2342	10409	476	26	41417
ALPENA	68	913	4	3	67	0	86	2453	877	46	4	17154
ANTRIM	0	23	0	0	0	0	0	0	0	0	0	241
ARENAC	0	0	0	0	0	0	0	0	0	0	0	47
BENZIE	78	416	0	0	0	0	208	1936	1040	208	78	8944
CHARLEVOIX	0	0	0	0	0	0	0	0	0	0	0	153
CHEBOYGAN	80	3322	0	0	67	0	80	3130	110	0	0	24628
CLARE	52	408	0	0	0	0	53	1255	2533	62	52	21206
CRAWFORD	52	217	0	0	0	0	28	634	3205	16	52	23059
EMMET	0	0	0	0	0	0	0	0	0	0	0	489
GLADWIN	21	216	0	0	0	0	21	520	659	21	0	5327
GRAND TRAVERSE	104	423	0	0	0	0	104	520	936	22	52	9615
IOSCO	0	395	0	0	0	0	0	818	211	0	0	17435
ISABELLA	26	467	8	7	0	1	83	160	168	47	10	8512
KALKASKA	42	374	0	0	0	0	42	1040	1040	52	42	9448
LAKE	748	832	87	121	0	18	1467	5038	7971	1005	367	38480
LEELANAU	104	45	0	0	0	0	156	1144	1040	208	104	4322
MANISTEE	336	728	4	4	0	1	519	3163	6342	1067	215	28546
MASON	114	148	2	2	0	0	237	2795	1353	231	107	10181
MECOSTA	295	761	53	40	0	10	746	544	2929	914	91	22090
MIDLAND	0	1	0	0	0	0	1	5	34	7	0	365
MISSAUKEE	104	261	0	0	0	0	104	1044	520	104	52	8878
MONTMORENCY	85	810	19	10	22	2	268	1134	5363	299	23	36945
NEWAYGO	396	553	89	78	0	17	1104	1450	7186	1238	163	24450
OCEANA	193	185	28	19	0	5	548	1486	1375	358	71	10083
OGEMAW	10	178	0	0	0	0	0	292	554	10	21	3718
OSCEOLA	332	404	69	54	0	14	956	820	1866	427	102	16408
OSCODA	72	1477	0	0	22	0	40	1919	4922	177	0	38663
OTSEGO	42	177	0	0	0	0	21	226	416	21	0	11703
PRESQUE ISLE	40	3645	0	0	44	0	40	1841	274	0	0	26515
ROSCOMMON	21	177	0	0	0	0	21	520	3422	104	21	14830
WEXFORD	219	120	1	0	0	0	227	3192	4088	304	105	43375
TOTAL	3677	19019	364	338	266	68	7200	41421	70843	7424	1758	527227
S. LOWER PENINSULA												
ALLEGAN	0	9	0	0	0	0	9	47	325	69	0	3257
CASS	0	0	0	0	0	0	0	0	0	0	0	121
GRATIOT	0	1	0	0	0	0	1	4	24	5	0	944
KENT	9	31	1	7	0	12	25	57	186	52	13	3393
MONTCALM	14	17	2	11	0	24	41	109	299	73	26	4263
MUSKEGON	0	16	0	0	0	0	16	81	640	122	0	6296
OTTAWA	0	0	0	0	0	0	0	0	0	0	0	876
TOTAL	23	74	3	18	0	36	92	298	1474	321	39	19150
STATE TOTAL	12430	50630	17954	356	33774	104	55937	86149	73527	7754	5185	1353088

1/INCLUDES ONLY THOSE COUNTIES THAT SUPPLIED PULPWOOD IN 1976.

TABLE 9 CONTINUED ON NEXT PAGE

TABLE 9 CONTINUED

MINNESOTA

UNIT AND COUNTY 1/	CEDAR	BALSAM FIR	HEMLOCK	JACK PINE	RED PINE	WHITE PINE	SPRUCE	TAMARACK	ASH	ASPEN	BALSAM POPLAR	BASSWOOD
NORTHERN ASPEN-BIRCH												
CARLTON	0	1999	0	3533	565	149	228	502	0	26701	0	0
COOK	0	3914	0	4751	18	0	10157	0	0	19310	0	0
KOOCHICHING	0	15306	0	17384	1227	787	64366	15329	0	122534	10103	0
LAKE	0	8535	0	20354	501	152	21816	64	0	24075	0	0
ST.LOUIS	0	13833	0	50397	3296	864	32794	3379	0	179684	8785	0
TOTAL	0	43587	0	96419	5607	1952	129361	19274	0	372304	18888	0
NORTHERN PINE												
AITKIN	0	1116	0	1219	59	67	1726	3415	0	24605	0	232
BECKER	0	0	0	1009	109	47	0	0	0	624	0	0
BELTRAMI	0	8512	0	5707	477	116	8268	2055	0	46211	4	0
CASS	0	2691	0	10293	1649	364	2041	1253	0	42031	0	0
CLEARWATER	0	322	0	3264	362	15	1423	4133	0	15891	4	0
CROW WING	0	6	0	4346	253	34	0	0	0	9234	0	127
HUBBARD	0	328	0	9083	150	27	384	1139	0	23560	0	0
ITASCA	0	16986	0	7161	1534	371	15732	3800	0	93528	3846	0
LAKE OF THE WOODS	0	90	0	4422	109	20	10524	412	0	6338	37	0
MAHNOMEN	0	0	0	828	21	1	0	24	0	520	0	0
ROSEAU	0	16	0	5353	76	0	6093	460	0	7640	37	0
WADENA	0	0	0	5514	40	4	33	0	0	5345	0	0
TOTAL	0	30067	0	58199	4839	1066	46224	16691	0	275527	3928	359
CENTRAL HARDWOOD												
BENTON	0	0	0	0	0	0	0	0	0	1196	0	106
ISANTI	0	0	0	0	0	0	0	0	0	16	0	0
KANABEC	0	0	0	6	6	0	0	0	0	2303	0	212
MILLE LACS	0	0	0	0	0	0	0	104	0	7450	0	318
MORRISON	0	8	0	1403	3	0	27	0	0	5796	0	106
OTTERTAIL	0	0	0	346	5	2	0	0	0	0	0	0
PINE	0	114	0	1287	6	0	0	0	0	8508	0	0
TODD	0	0	0	699	5	0	35	0	0	0	0	0
TOTAL	0	122	0	3735	19	2	62	104	0	25269	0	742
PRAIRIE												
POLK	0	0	0	0	0	0	0	926	0	0	0	0
TOTAL	0	0	0	0	0	0	0	926	0	0	0	0
STATE TOTAL	0	73776	0	158353	10465	3020	175647	36995	0	673100	22816	1101

1/INCLUDES ONLY THOSE COUNTIES THAT SUPPLIED PULPWOOD IN 1976. -

TABLE 9 CONTINUED ON NEXT PAGE

TABLE 9 CONTINUED

UNIT AND COUNTY 1/	BEECH	WHITE BIRCH	YELLOW BIRCH	COTTON-WOOD	ELM	HICKORY	HARD MAPLE	SOFT MAPLE	RED OAK	WHITE OAK	OTHER HARD-WOODS	ALL SPECIES
NORTHERN ASPEN-BIRCH												
CARLTON	0	4277	0	0	0	0	21	10	0	0	0	37985
COOK	0	0	0	0	0	0	0	0	0	0	0	38150
KOOCHICHING	0	3469	0	0	0	0	104	124	0	0	0	250733
LAKE	0	3577	0	0	0	0	0	0	0	0	0	79074
ST.LOUIS	0	9304	0	0	0	0	29	122	0	0	0	302487
TOTAL	0	20627	0	0	0	0	154	256	0	0	0	708429
NORTHERN PINE												
AITKIN	0	1779	0	0	219	0	219	219	876	0	0	35751
BECKER	0	0	0	0	0	0	0	0	0	0	0	1789
BELTRAMI	0	7249	0	0	0	0	165	8	0	0	0	78772
CASS	0	4683	0	0	0	0	0	0	0	0	0	65005
CLEARWATER	0	1137	0	0	0	0	38	3	0	0	0	26592
CROW WING	0	1159	0	0	119	0	119	119	477	0	0	15993
HUBBARD	0	2528	0	0	0	0	0	0	0	0	0	37199
ITASCA	0	3281	0	0	0	0	53	16	0	0	0	146308
LAKE OF THE WOODS	0	0	0	0	0	0	0	0	0	0	0	21952
MAHNOMEN	0	520	0	0	0	0	0	0	0	0	0	1914
ROSEAU	0	520	0	0	0	0	0	0	0	0	0	20195
WADENA	0	520	0	0	0	0	0	0	0	0	0	11456
TOTAL	0	23376	0	0	338	0	594	365	1353	0	0	462926
CENTRAL HARDWOOD												
BENTON	0	100	0	0	100	0	100	100	398	0	0	2100
ISANTI	0	50	0	0	0	0	0	0	0	0	0	66
KANABEC	0	366	0	0	199	0	199	199	797	0	0	4275
MILLE LACS	0	427	0	0	299	0	299	299	1197	0	0	10393
MORRISON	0	100	0	0	100	0	100	100	398	0	0	8141
OTTERTAIL	0	0	0	0	0	0	0	0	0	0	0	353
PINE	0	1040	0	0	0	0	0	0	0	0	0	10955
TODD	0	0	0	0	0	0	0	0	0	0	0	739
TOTAL	0	2083	0	0	698	0	698	698	2790	0	0	37022
PRAIRIE												
POLK	0	0	0	0	0	0	0	0	0	0	0	926
TOTAL	0	0	0	0	0	0	0	0	0	0	0	926
STATE TOTAL	0	46086	0	0	1036	0	1446	1319	4143	0	0	1209303

1/INCLUDES ONLY THOSE COUNTIES THAT SUPPLIED PULPWOOD IN 1976.

TABLE 9 CONTINUED ON NEXT PAGE

TABLE 9 CONTINUED

UNIT AND COUNTY 1/	CEDAR	BALSAM FIR	HEMLOCK	JACK PINE	RED PINE	WHITE PINE	SPRUCE	TAMARACK	ASH	ASPEN	BALSAM POPLAR	BASSWOOD
NORTHEASTERN												
FLORENCE	0	3346	3246	596	1625	98	1334	123	73	44115	1	10
FOREST	0	13470	4362	660	2983	74	3420	252	1269	36176	54	193
LANGLADE	0	1746	1424	338	3186	131	362	95	1421	15421	0	569
LINCOLN	0	2606	2185	814	1297	321	1257	491	2759	39671	0	3045
MARINETTE	17	7929	1821	5754	4626	171	1550	194	903	87326	488	11
OCONTO	0	1176	366	1233	5359	275	197	68	57	21209	0	6
ONEIDA	0	20126	1570	4474	5742	883	4478	674	1508	46266	0	651
SHAWANO 2/	0	104	8240	143	1235	72	22	14	630	17028	0	2
VILAS	0	10819	4237	5902	5591	1599	1243	11	123	37899	0	177
TOTAL	17	61322	27451	19914	31644	3624	13863	1922	8743	345111	543	4664
NORTHWESTERN												
ASHLAND	0	9056	2299	4311	2746	538	1518	88	2421	34636	0	405
BARRON	0	0	0	415	54	24	0	0	1	0	0	0
BAYFIELD	0	2769	154	9571	3013	432	150	0	326	60131	0	0
BURNETT	0	0	0	23788	4348	758	0	0	10	2417	0	0
DOUGLAS	0	313	0	20142	2258	156	89	28	65	25635	0	0
IRON	0	2641	1358	486	228	124	649	0	779	48282	0	1172
POLK	0	0	0	704	94	19	0	0	0	0	0	0
PRICE	0	5525	1655	451	841	128	768	503	3673	44252	0	1596
RUSK	0	523	659	0	0	21	103	24	1286	9428	0	843
SAWYER	0	2994	920	2629	4935	214	408	2	2270	27941	0	198
TAYLOR	0	1579	1950	143	449	130	426	174	2131	17414	0	815
WASHBURN	0	146	0	9370	2494	163	23	0	92	37740	0	0
TOTAL	0	25546	8995	72010	21459	2707	4134	819	13054	307876	0	5029
CENTRAL												
ADAMS	0	0	0	23034	12449	545	0	89	64	47	0	0
CHIPPEWA	0	9	202	350	187	10	0	171	1582	8812	0	504
CLARK	0	37	162	1013	1167	304	0	0	345	3782	0	59
EAU CLAIRE	0	0	0	3056	1658	51	0	0	1	217	0	0
JACKSON	0	0	0	10714	6421	99	0	133	94	76	0	0
JUNEAU	0	0	0	12199	4716	542	0	41	151	552	0	0
MARATHON	0	1859	5689	830	1949	256	638	6	1306	9323	0	101
MARQUETTE	0	0	0	911	1078	104	41	0	52	32	0	0
MONROE	0	0	0	3404	2218	40	0	0	51	101	0	0
PORTAGE	0	16	96	4716	2632	1021	3	0	135	1934	0	0
WAUPACA	0	10	26	295	895	149	0	0	191	10489	0	0
WAUSHARA	0	0	5	2592	4257	673	0	68	32	894	0	0
WOOD	0	0	191	11546	4334	1450	1	24	346	2391	0	67
TOTAL	0	1931	6371	74660	43961	5244	683	532	4350	38650	0	731
SOUTHWESTERN												
BUFFALO	0	0	0	23	22	0	0	0	0	0	0	0
CRAWFORD	0	0	0	0	0	0	0	0	197	25	0	13
DUNN	0	0	0	487	935	41	0	0	0	0	0	0
GRANT	0	0	0	14	14	0	0	0	29	3	0	3
IOWA	0	0	0	11	107	6	0	0	0	0	0	0
LACROSSE	0	0	0	376	462	215	0	0	0	0	0	0
PEPIN	0	0	0	26	23	0	0	0	0	0	0	0
RICHLAND	0	0	0	52	47	0	0	0	0	0	0	0
SAUK	0	0	0	385	774	194	0	0	0	0	0	0
TREMPEALEAU	0	0	0	255	244	0	0	0	0	0	0	0
TOTAL	0	0	0	1629	2628	456	0	0	226	28	0	16
SOUTHEASTERN												
BROWN	0	0	0	17	150	8	0	0	0	32	0	0
COLUMBIA	0	0	0	124	963	0	0	0	47	0	0	0
DANE	0	0	0	138	7	171	0	0	0	0	0	0
DODGE	0	0	0	0	0	0	0	0	0	0	0	0
GREEN	0	0	0	92	991	18	0	0	0	0	0	0
GREEN LAKE	0	0	0	8	2	0	0	0	0	0	0	0
JEFFERSON	0	0	0	0	0	0	0	0	0	0	0	0
OUTAGAMIE	0	0	0	35	316	18	0	0	45	1733	0	0
ROCK	0	0	0	776	129	0	0	0	0	0	0	0
WAUKESHA	0	0	0	212	2014	111	0	0	0	0	0	0
TOTAL	0	0	0	1402	4572	326	0	0	92	1765	0	0
STATE TOTAL	17	88799	42817	169615	104264	12357	18680	3273	26465	693430	543	10440

1/ INCLUDES ONLY THOSE COUNTIES THAT SUPPLIED PULPWOOD IN 1976.
2/ INCLUDES MENOMINEE COUNTY.

TABLE 9 CONTINUED ON NEXT PAGE

TABLE 9 CONTINUED

UNIT AND COUNTY 1/	BEECH	WHITE BIRCH	YELLOW BIRCH	COTTON-WOOD	ELM	HICKORY	HARD MAPLE	SOFT MAPLE	RED OAK	WHITE OAK	OTHER HARD-WOODS	ALL SPECIES
NORTHEASTERN												
FLORENCE	0	533	332	0	22193	0	1516	788	4	0	80	80013
FOREST	62	3564	1464	0	7747	0	8328	1779	43	0	1775	87675
LANGLADE	0	1645	908	0	16905	188	7887	2511	502	0	1118	56357
LINCOLN	0	4295	764	0	17633	66	4436	3457	1618	0	250	86965
MARINETTE	183	9109	137	0	2052	0	1045	1952	36	3	225	125532
OCONTO	26	1191	37	0	134	0	162	231	62	0	7	31796
ONEIDA	0	13750	901	0	3738	0	4098	5810	1686	0	394	116749
SHAWANO 2/	0	709	334	0	5072	514	2171	899	29	0	371	37589
VILAS	0	9315	920	0	5930	0	3964	1212	798	0	103	89843
TOTAL	271	44111	5797	0	81404	768	33607	18639	4778	3	4323	712519
NORTHWESTERN												
ASHLAND	0	3982	1113	0	4128	0	4683	3246	409	3	270	75852
BARRON	0	37	0	0	2	0	2	1	3	0	0	539
BAYFIELD	0	11581	934	0	631	0	818	517	361	42	61	91491
BURNETT	0	12	4	0	38	0	30	27	0	0	5	31437
DOUGLAS	0	3588	83	0	108	0	118	91	0	0	14	52688
IRON	0	4361	304	0	4533	0	1432	919	518	0	72	67858
POLK	0	0	0	0	0	0	0	0	0	0	0	817
PRICE	0	8838	1387	0	18169	0	5495	3982	963	31	303	98560
RUSK	0	3908	551	0	7565	0	2296	1690	889	5	88	29879
SAWYER	0	7210	800	0	8781	0	4336	3017	626	11	388	67680
TAYLOR	0	4215	1000	0	13027	0	4413	3240	1027	13	137	52282
WASHBURN	0	1671	182	0	223	0	134	236	19	4	29	52526
TOTAL	0	49403	6358	0	57205	0	23757	16966	4815	109	1367	621609
CENTRAL												
ADAMS	0	84	21	0	168	0	81	205	4938	1351	23	43099
CHIPPEWA	0	2538	914	0	2579	0	1891	3122	6491	0	162	29524
CLARK	1	432	163	0	772	0	575	1045	8603	2152	72	20684
EAU CLAIRE	0	3	2	0	4	0	5	14	8	0	0	5019
JACKSON	1	192	44	0	192	0	182	284	1088	295	20	19835
JUNEAU	1	171	48	0	309	0	161	402	3423	1008	39	23763
MARATHON	0	1157	814	0	49840	66	3524	6673	2640	0	249	86920
MARQUETTE	1	214	6	0	1820	0	357	1142	178	53	20	6009
MONROE	0	66	21	0	187	0	90	186	0	0	25	6389
PORTAGE	0	79	69	0	629	44	313	413	4029	1179	53	17361
WAUPACA	0	153	98	0	1290	110	547	380	36	8	161	14838
WAUSHARA	0	130	27	0	103	0	133	151	716	209	4	9994
WOOD	1	362	98	0	999	0	423	1002	10346	2771	40	36392
TOTAL	5	5581	2325	0	58892	220	8282	15019	42496	9026	868	319827
SOUTHWESTERN												
BUFFALO	0	0	0	0	0	0	0	0	0	0	0	45
CRAWFORD	0	12	0	484	183	295	573	485	416	158	12	2853
DUNN	0	0	0	0	0	0	0	0	0	0	0	1463
GRANT	0	3	0	72	26	45	87	73	62	23	2	456
IOWA	0	0	0	0	0	0	0	0	0	0	0	124
LACROSSE	0	0	0	0	0	0	0	0	0	0	0	1053
PEPIN	0	0	0	0	0	0	0	0	0	0	0	49
RICHLAND	0	0	0	0	0	0	0	0	0	0	0	99
SAUK	0	0	0	0	0	0	0	0	16	5	0	1374
TREMPEALEAU	0	0	0	0	0	0	0	0	0	0	0	499
TOTAL	0	15	0	556	209	340	660	558	494	186	14	8015
SOUTHEASTERN												
BROWN	0	0	0	0	0	0	0	0	0	0	0	207
COLUMBIA	0	57	19	0	172	0	138	108	502	337	24	2491
DANE	0	0	0	0	0	0	0	0	0	0	0	316
DODGE	0	0	0	0	0	0	0	0	3	3	0	6
GREEN	0	0	0	0	0	0	0	0	0	0	0	1101
GREEN LAKE	0	0	0	0	0	0	0	0	18	11	0	39
JEFFERSON	0	0	0	0	0	0	0	0	34	25	0	59
OUTAGAMIE	0	224	45	0	137	0	224	224	0	0	0	3001
ROCK	0	0	0	0	0	0	0	0	0	0	0	905
WAUKESHA	0	0	0	0	0	0	0	0	0	0	0	2337
TOTAL	0	281	64	0	309	0	362	332	557	376	24	10462
STATE TOTAL	276	99391	14544	556	198019	1328	66668	51514	53140	9700	6596	1672432

1/ INCLUDES ONLY THOSE COUNTIES THAT SUPPLIED PULPWOOD IN 1976.
2/ INCLUDES MENOMINEE COUNTY.

Table 10. — *Central States pulpwood production by State and destination, 1972-1976* (In thousand standard cords, roughwood basis)

Year	Illinois			Indiana			Iowa			Missouri		
		Destination			Destination			Destination			Destination	
	Total	Central States	Other States	Total	Central States	Other States	Total	Central States	Other States	Total	Central States	Other States
1972	139	103	36	152	71	81	55	54	1	117	78	39
1973	146	124	22	148	80	68	48	46	2	112	63	49
1974	131	98	33	159	84	75	59	57	2	137	77	60
1975	105	60	45	135	58	77	50	48	2	116	43	73
1976	116	65	51	172	78	94	45	41	4	132	55	77

Table 11. — *Trends in receipts of roundwood and residue as pulpwood Central States, 1972-1976* (In thousand standard cords, roughwood basis)

Type of Material and Area	1972	1973	1974	1975	1976
Roundwood					
Illinois	67	70	56	13	18
Indiana, Iowa, Missouri	99	106	93	74	81
Total	166	176	149	86	99
Residue					
Illinois	116	122	104	64	71
Indiana, Iowa, Missouri	74	81	100	86	102
Total	190	203	204	150	173
All Material	356	379	353	236	272

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Discusses 1976 pulpwood production and receipts and recent production in the Lake States and Central States. Shows pulpwood production in the Lake States (Michigan, Minnesota, and Wisconsin) by species for each county and compares production by Forest Survey Unit with that of previous years. Presents 1976 pulpwood production and receipt data by State for the Central States (Illinois, Indiana, Iowa, and Missouri) shows four production classes by county.

OXFORD: 861.0(77):792. KEY WORDS: roundwood, residue, receipts, Lake States, Central States.

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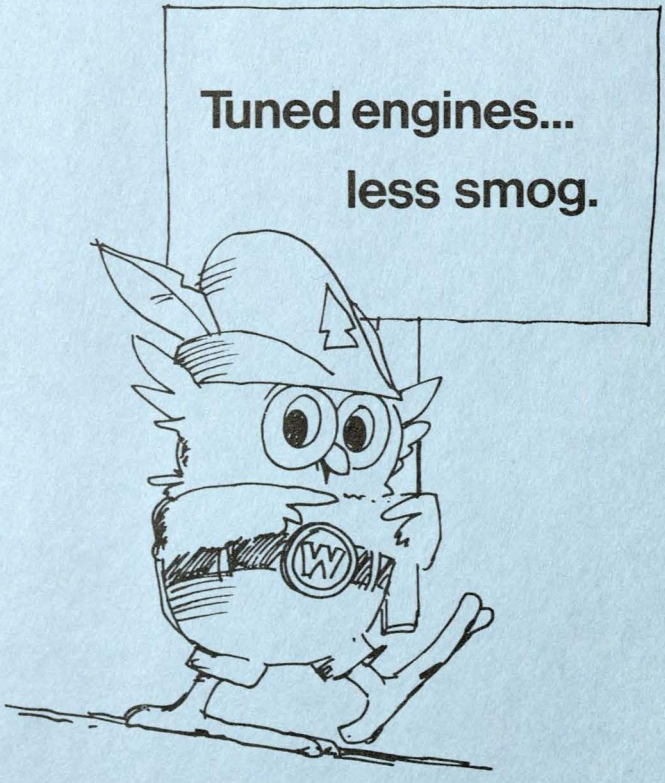
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